

SECTION 08635
TRANSLUCENT SKYLIGHTS

PART 1 - GENERAL

0.1 DESCRIPTION OF WORK

- A.** Work Included: This Section specifies high-performance translucent skylights.
- B.** Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Section 08630 -METAL-FRAMED SKYLIGHTS.

0.2 SUBMITTALS

- A.** Product Data: Manufacturer's printed descriptive literature, specifications, and installation instructions.
- B.** Shop Drawings: Specifically prepared for this project.
 - 1. Include layouts, details of framing members, type and thickness of flashing and closures, interface with adjacent construction, fasteners and anchors, and sealers.
 - 2. If field measurements are taken prior to fabrication, include field measurements on shop drawings, clearly identified as such.
- C.** Design Data: Structural calculations of horizontal and vertical forces generated at structural supports.
- D.** Verification Samples: Actual metal samples with color selected, for verification.

0.3 QUALITY ASSURANCE

- A.** Manufacturer Qualifications: Minimum of ten years experience in the fabrication and installation of products similar to those specified.
- B.** Installer Qualifications: Manufacturer personnel or manufacturer's authorized installer having at least five years experience in skylight installation.
- C.** Pre-Installation Meeting: Convene just prior to start of site operations. Require attendance of installer and installation personnel. Cover

procedures required to maintain proper working conditions and to coordinate with other work.

0.4 DELIVERY, STORAGE AND HANDLING

- A.** Arrange deliveries to avoid delays but to minimize on-site storage.
- B.** Deliver products in labeled protective packages.
- C.** Deliver, handle, and store in strict compliance with manufacturer's instructions and recommendations.
- D.** Store panels on long edge several inches above ground, using blocking to prevent warping.
- E.** Cover stored products to protect from damage due to weather, direct sunlight, excessive temperatures, and construction operations.

0.5 WARRANTY

- A.** Provide manufacturer's written warranty for skylights warranting that assembly is free of defects in material and workmanship. Include repair or replacement of defective work for 5 years from date of completion. Defects are defined to include uncontrolled leakage of water, abnormal aging or deterioration, and failure to perform as specified.
- B.** Provide manufacturer's written warranty for translucent facing sheet warranting that material is free of defects. Include replacement of defective materials for 10 years from date of completion. Defects are defined to include fiberbloom, delamination of coating from exterior sheet, and discoloration of more than 8.0 Delta E units.

PART 2 - PRODUCTS

0.1 MANUFACTURERS

- A.** Manufacturer's include but are not limited to the following:
 - 1. Advanced Translucent System made by Skywall Translucent Systems, Division of Butler Manufacturing Company.
 - 2. Auburn by Major Industries, Inc.
 - 3. Nutralite by Butler Manufacturing Co., Inc., The Vistawall Group.
 - 4. Approved equal
- B.** Requests for substitution will be considered in accordance with provisions of Section 01600.

- C. For manufacturers not listed, submit evidence of ability to provide products that meet both performance and product requirements.
- D. Provide primary materials that are made by a single manufacturer and secondary material approved by primary material manufacturer.

0.2 SKYLIGHTS

- A. Structural Performance Requirements: Design to withstand the following loads without damage in accord with the requirements of the latest edition of the Massachusetts State Building Code (780 CMR):
 - 1. Snow Loads: 780 CMR 1610, Snow Load Zone 3, 30 psf basic load plus drift as required by code
 - 2. Wind Loads: 780 CMR 1611, Wind Load Zone as required by code.
 - 3. Live Load: 250 pounds concentrated load applied to framing members at point that produces the most severe stress or deflection.
 - 4. Seismic Loads: As required by 780 CMR 1612.
 - 5. Thermal Loads: As required by AAMA Structural Design Guidelines for Aluminum Framed Skylights.
 - 6. Dead loads.
 - 7. Deflection of Framing Members Normal to Glazing Plane: Not more than 1/180 of unsupported span.
- B. Environmental Performance Requirements: Design to meet the following when tested on full-scale mock-up by an independent testing agency:
 - 1. Air Infiltration: Not greater than 0.06 cfm/sq ft of surface area, at static pressure of 6.24 psf, when tested in accordance with ASTM E 283.
 - 2. Static Water Leakage: No uncontrolled leakage at static pressure of 15 psf, when tested in accordance with ASTM E 331.
 - 3. Dynamic Water Leakage: No uncontrolled leakage at 77 mph slip-stream velocity, equivalent to 15 psf differential pressure, when tested in accordance with AAMA 501.1.
- C. Skylight Assemblies: Aluminum framing system with translucent panels, factory-fabricated, complete with all flashings, connections, supports, and anchors complying with specified performance requirements.
 - 1. Fabricate to actual dimensions of constructed work where possible; otherwise, allow for field adjustment using trim or flashing of adjustable size or configuration.
 - 2. Exposed Aluminum Finish (Interior and Exterior): Two coat fluoropolymer coating, of 70% Kynar resin, complying with AAMA 2604.
 - 3. Color: Selected from full range of manufacturer's standard colors.
- D. Structural Members: Rafters, purlins, and sills of extruded aluminum, alloy 6063-T5 or 6061-T6, with integral primary and secondary condensation

gutters that drain to exterior through baffled weepholes, and continuous cushion above and below panels using glazing gaskets keyed into framing members.

1. Join rafter splices and rafter/tube frame connections using pan- or truss-head fasteners.
2. Sill Members: Continuous extrusion with integral reglet to receive and secure perimeter flashing.
3. Do not penetrate condensation gutter of sill members with either rafter connections or anchors to substrate.
4. Provide slotted expansion joints in sill members, end dammed and sealed.
5. Glazing Caps: Extruded aluminum, securing translucent panels to framing, with concealed glazing clips or fasteners at maximum of 9 inches on center.
6. Glazing Clips: Thermally broken, with positive stop in glazing rabbet providing uniform compression of edges of panels.
7. Anchors and Fasteners Exposed to Weather: 300 series stainless steel.
8. Anchors and Fasteners Not Exposed to Weather: Cadmium-plated.
9. Metal-to-Metal and Framing-to-Panel Joints: Seal with skylight manufacturer's standard color-matched sealant.

E. Glazing Gaskets: Continuous, extruded EPDM rubber; black.

1. Ozone Resistance: Withstanding 1 part per million ozone for 100 hours at 20% elongation at 40°C, without cracking, when tested in accordance with ASTM D 1149.
2. Compression Set: Not greater than 30%.
3. Gaskets Below Panels: Dense gasket complying with ASTM C 864; Shore A durometer of 60.
4. Gaskets Above Panels: Closed-cell sponge gasket complying with ASTM C 509.

0.3 TRANSLUCENT PANELS

A. Performance Requirements:

1. Thermal Resistance: U-value as published by manufacturer for thickness selected, determined insulating value by testing in accordance with ASTM C 236; NFRC 100 certification of value is acceptable.
2. Uniform Load Deflection: 3.5 inches, maximum, under 35 psf uniform loading, with permanent set after 5 minutes not more than 0.09 inch; when tested in accordance with ASTM E 72 with 4 by 12 foot panel.
3. Concentrated Load Strength: Support 300 pound load without failure, applied to 3 inch diameter disc and tested in accordance with ASTM E 661.

- B.** Panels: Double-faced, insulated, translucent fiberglass sandwich panels, composed of flat fiberglass facing sheet factory-laminated to aluminum grid core by heat and pressure process.
1. Panel thickness: 2-3/4 inches.
 2. Grid pattern: Square, 12 by 12 inches.
 3. Exterior sheet thickness: 0.070 inch.
 4. Interior sheet thickness: 0.045 inch.
 5. Sheet colors: As selected from manufacturer's standard colors.
- C.** Grid Core: Extruded aluminum, alloy 6063-T6; I-beam shaped, minimum 7/16 inch wide; continuous perimeter members interlocking with muntins/mullions; flat bonding contact surface without high or low points.
1. Adhesive: Cover entire width of core member surface, with neat sharp bonding line edge.
 2. Bond Skips at Intersections: Not more than 4 inches each 50 square feet of panel; not more than 3/64 inch in width.
- D.** Translucent Facing Sheet: Fiberglass reinforced resin sheet, uniform in color, free of ridges, wrinkles, clusters of air bubbles or pinholes, and with the following characteristics:
1. Interior Sheet Flammability: Flame spread not more than 20 and smoke developed not more than 200, when tested in accordance with ASTM E 84; burn extent not more than 1 inch, when tested in accordance with ASTM D 635.
 2. Exterior Sheet Protective Coating: DuPont Tedlar, 1 mil thick, field-refinishable; applied by licensed sheet manufacturer for architectural use.
 3. Exterior Sheet Fade Resistance: Use colorfast resins; color difference (Delta E) after weathering of not more than 4.0 units, determined in accordance with ASTM D 2244 after 5 years outdoor weathering in South Florida at 45° facing south, conducted in accordance with ASTM D 1435.

PART 3 - EXECUTION

0.1 EXAMINATION

- A.** Take field measurements to verify that fabricated work will fit spaces intended.
- B.** Verify that areas in which work is to be installed are ready for installation.
- C.** Do not proceed until unsatisfactory conditions have been corrected.

0.2 INSTALLATION

- A.** Install in strict accordance with manufacturer's instructions and recommendations and with approved shop drawings; provide a complete weatherproof assembly.
- B.** Anchor securely to supporting structure, but allow for differential and thermal movement.
- C.** Separate aluminum members from dissimilar metals with protective coating or sheet capable of preventing electrolytic action.
- D.** Ensure that weep and condensation control measures function properly.
- E.** Coordinate with other work.

0.3 CLEANING AND REPAIR

- A.** Remove labels, part number markings, sealant smears, handprints, and construction dirt; protect installed work from damage.
- B.** Clean all exposed surfaces immediately prior to final inspection, using non-abrasive materials and methods recommended by manufacturer.
- C.** Repair damaged components and finishes in accordance with manufacturer's recommendations; replace work that cannot be repaired to the satisfaction of the Architect.

PART 4 - MEASUREMENT AND PAYMENT

0.1 MEASUREMENT

- A.** Translucent skylights will be measured as per square foot complete in place, including all preparation, glazing, accessories and incidentals.

0.2 PAYMENT

- A.** Payment for translucent skylights will be made at the Contract unit price for the quantities as specified above.

0.3 PAYMENT ITEMS

ITEM NO.	DESCRIPTION	UNIT
0782.007	TRANSLUCENT SKYLIGHTS	EA

END OF SECTION